

## **IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Withdrawn) A semiconductor device comprising a first film and a second film formed in contact with said first film, wherein a concentration of a contaminating impurity in an interface between said first film and said second film is  $2 \times 10^{16}$  atoms/cm<sup>3</sup> or less.

2. (Withdrawn) A device according to claim 1, wherein the contaminating impurity is at least one element selected from periodic table group 1 elements or periodic table group 2 elements.

3. (Withdrawn) A device according to claim 1, wherein the contaminating impurity element is at least one element selected from the group consisting of Na, K, Mg, Ca, and Ba.

4. (Withdrawn) A device according to claim 1, wherein said first film and said second film are a crystalline semiconductor film and an insulating film in contact with the crystalline semiconductor film, respectively.

5. (Withdrawn) A device according to claim 1, wherein said first film and said second film are an insulating film functioning as a gate insulating film and a gate wiring in contact with the insulating film.

6. (Withdrawn) A semiconductor device comprising a first film, and a second film formed in contact with said first film, wherein a concentration of a contaminating impurity within said first film, a

concentration of the contaminating impurity within said second film, and a concentration of the contaminating impurity in the interface between said first film and said second film are all  $2 \times 10^{16}$  atoms/cm<sup>3</sup> or less, respectively.

7. (Withdrawn) A device according to claim 6, wherein the contaminating impurity is at least one element selected from periodic table group 1 elements or periodic table group 2 elements.

8. (Withdrawn) A device according to claim 6, wherein the contaminating impurity element is at least one element selected from the group consisting of Na, K, Mg, Ca, and Ba.

9. (Withdrawn) A device according to claim 6, wherein said first film and said second film are a crystalline semiconductor film and an insulating film in contact with the crystalline semiconductor film, respectively.

10. (Withdrawn) A device according to claim 6, wherein said first film and said second film are an insulating film functioning as a gate insulating film and a gate wiring in contact with the insulating film.

11. (Currently Amended) A method of manufacturing a semiconductor device, comprising steps of:

forming a semiconductor film ~~formed~~ over a substrate having an insulating surface;

forming a patterned resist mask over said semiconductor film;

patterning said semiconductor film to form at least one semiconductor island;

removing the patterned resist mask located over said semiconductor island;

spinning the substrate after removing the patterned resist mask;

applying an etching solution to a surface of said semiconductor ~~film~~ island and scattering the etching solution during said spinning, thereby contaminating impurities are removed from the surface of the semiconductor island by the step of applying the etching solution; and then

forming a gate insulating film in contact with the semiconductor film from the surface of which the contaminating impurity has been removed.

12. (Original) A method according to claim 11, wherein the contaminating impurity is at least one element selected from periodic table group 1 elements or periodic table group 2 elements.

13. (Original) A method according to claim 11, wherein the contaminating impurity element is at least one element selected from the group consisting of Na, K, Mg, Ca, and Ba.

14. (Original) A method according to claim 11, wherein the contaminating impurity is removed by an acidic solution containing fluorine.

15. (Currently Amended) A method of manufacturing a semiconductor device, comprising steps of:

forming a semiconductor film over a substrate having an insulating surface;

forming a patterned resist mask over said semiconductor film;

forming patterning said semiconductor film to form at least one semiconductor island~~over a substrate;~~

removing the patterned resist mask located over said semiconductor island;

spinning the substrate after removing the patterned resist mask;

applying an etching solution to a surface of said semiconductor island and scattering the etching solution during said spinning, thereby contaminating impurities are removed from the surface of the semiconductor island by the step of applying the etching solution; and then

forming a gate insulating film over said semiconductor island after the contaminating impurities are removed from the surface of the semiconductor island[.];

spinning the substrate having the gate insulating film;

applying an etching solution to a surface of said gate insulating film and scattering the etching solution during said spinning, thereby contaminating impurities are removed from the surface of the gate insulating film by the step of applying the etching solution; and then

forming a gate electrode over said gate insulating film after the contaminating impurities are removed from the surface of the gate insulating film.

16. (Previously Presented) A method according to claim 15, wherein said etching solution is selected from the group consisting of hydrofluoric acid, dilute hydrofluoric acid, ammonium fluoride, buffered hydrofluoric acid (BHF), hydrofluoric acid and aqueous hydrogen peroxide (FPM), and a solution mixture including ammonium hydrofluoride ( $\text{NH}_4\text{HF}_2$ ) and ammonium fluoride ( $\text{NH}_4\text{F}$ ) (LAL500).

17. (Previously Presented) A method according to claim 15, wherein the contaminating impurity is at least one element selected from periodic table group 1 elements or periodic table group 2 elements.

18. (Previously Presented) A method according to claim 15, wherein the contaminating impurity element is at least one element selected from the group consisting of Na, K, Mg, Ca, and Ba.

19. (Currently Amended) A method of manufacturing a semiconductor device, comprising steps of:

forming a semiconductor film over a substrate having an insulating surface;

crystallizing said semiconductor film;

forming a patterned resist mask over said crystallized semiconductor film;

patterning the crystallized semiconductor film ~~forming to form~~ at least one semiconductor island over said substrate by ~~patterning the crystallized semiconductor film~~;

removing the patterned resist mask located over said semiconductor island;

spinning the substrate after removing the patterned resist mask;

applying an etching solution to a surface of said semiconductor island and scattering the etching solution during said spinning, thereby contaminating impurities are removed from the surface of the semiconductor island; and then

forming a gate insulating film over said semiconductor island after the contaminating impurities are removed from the surfaces by the step of applying the etching solution; and

forming a gate electrode over said gate insulating film.

20. (Previously Presented) A method according to claim 19, wherein said etching solution is selected from the group consisting of hydrofluoric acid, dilute hydrofluoric acid, ammonium fluoride, buffered hydrofluoric acid (BHF), hydrofluoric acid and aqueous hydrogen peroxide (FPM), and a solution mixture including ammonium hydrofluoride ( $\text{NH}_4\text{HF}_2$ ) and ammonium fluoride ( $\text{NH}_4\text{F}$ ) (

LAL500).

21. (Previously Presented) A method according to claim 19, wherein the contaminating impurity is at least one element selected from periodic table group 1 elements or periodic table group 2 elements.

22. (Previously Presented) A method according to claim 19, wherein the contaminating impurity element is at least one element selected from the group consisting of Na, K, Mg, Ca, and Ba.

23. (Currently Amended) A method of manufacturing a semiconductor device, comprising steps of:

forming a gate wiring over a substrate having an insulating surface;

spinning the substrate;

applying an etching solution to surfaces of said substrate and said gate wiring and scattering the etching solution during said spinning, thereby contaminating impurities are removed from the surfaces surface of the wiring and the insulating surface by the step of applying the etching solution; and then

forming a gate insulating film and a semiconductor film over said gate wiring after the contaminating impurities are removed from the surfaces.

24. (Previously Presented) A method according to claim 23, wherein said etching solution is selected from the group consisting of hydrofluoric acid, dilute hydrofluoric acid, ammonium fluoride, buffered hydrofluoric acid (BHF), hydrofluoric acid and aqueous hydrogen peroxide (FPM), and a solution mixture including ammonium hydrofluoride ( $\text{NH}_4\text{HF}_2$ ) and ammonium fluoride ( $\text{NH}_4\text{F}$ ) (LAL500).

25. (Previously Presented) A method according to claim 23, wherein the contaminating impurity is at least one element selected from periodic table group 1 elements or periodic table group 2 elements.

26. (Previously Presented) A method according to claim 23, wherein the contaminating impurity element is at least one element selected from the group consisting of Na, K, Mg, Ca, and Ba.

27. (Currently Amended) A method of manufacturing a semiconductor device, comprising steps of:

forming a gate wiring over a substrate having an insulating surface;

spinning the substrate;

applying an etching solution to surfaces of said substrate and said gate wiring and scattering the etching solution during said spinning, thereby contaminating impurities are removed from the ~~surfaces~~ surface of the wiring and the insulating surface by the step of applying the etching solution; and then

forming a gate insulating film and a semiconductor film over said gate wiring, continuously after the contaminating impurities are removed from the surfaces.

28. (Previously Presented) A method according to claim 27, wherein said etching solution is selected from the group consisting of hydrofluoric acid, dilute hydrofluoric acid, ammonium fluoride, buffered hydrofluoric acid (BHF), hydrofluoric acid and aqueous hydrogen peroxide (FPM), and a solution mixture including ammonium hydrofluoride ( $\text{NH}_4\text{HF}_2$ ) and ammonium fluoride ( $\text{NH}_4\text{F}$ ) (LAL500).

29. (Previously Presented) A method according to claim 27, wherein the contaminating impurity is at least one element selected from periodic table group 1 elements or periodic table group 2 elements.

30. (Previously Presented) A method according to claim 27 wherein the contaminating impurity element is at least one element selected from the group consisting of Na, K, Mg, Ca, and Ba.

31. (Previously Presented) A method according to claim 11, wherein said etching solution is selected from the group consisting of hydrofluoric acid, dilute hydrofluoric acid, ammonium fluoride, buffered hydrofluoric acid (BHF), hydrofluoric acid and aqueous hydrogen peroxide (FPM), and a solution mixture including ammonium hydrofluoride ( $\text{NH}_4\text{HF}_2$ ) and ammonium fluoride ( $\text{NH}_4\text{F}$ ) (LAL500).

32. (Previously Presented) A method according to claim 15, wherein the contaminating impurity is removed by an acidic solution containing fluorine.

33. (Previously Presented) A method according to claim 19, wherein the contaminating impurity is removed by an acidic solution containing fluorine.

34. (Previously Presented) A method according to claim 23, wherein the contaminating impurity is removed by an acidic solution containing fluorine.

35. (Previously Presented) A method according to claim 27, wherein the contaminating impurity is removed by an acidic solution containing fluorine.



36. (Currently amended) A method according to claim 19, wherein the step of crystallization is performed by irradiating the semiconductor film with a laser light.

37. (New) A method of manufacturing a semiconductor device, comprising steps of:

- forming a semiconductor film over a substrate having an insulating surface;
- crystallizing said semiconductor film;
- forming a patterned resist mask over said crystallized semiconductor film;
- patterning the crystallized semiconductor film to form at least one semiconductor island over said substrate;
- removing the patterned resist mask located over said semiconductor island;
- spinning the substrate after removing the patterned resist mask;
- applying an etching solution to a surface of said semiconductor island and scattering the etching solution during said spinning, thereby contaminating impurities are removed from the surface of the semiconductor island; and then
- forming a gate insulating film over said semiconductor island after the contaminating impurities are removed from the surfaces by the step of applying the etching solution;
- spinning the substrate having the gate insulating film;
- applying an etching solution to a surface of said gate insulating film and scattering the etching solution during said spinning, thereby contaminating impurities are removed from the surface of the gate insulating film by the step of applying the etching solution; and then
- forming a gate electrode over said gate insulating film after the contaminating impurities are removed from the surface of the gate insulating film.

38. (New) A method according to claim 37, wherein said etching solution is selected from the group consisting of hydrofluoric acid, dilute hydrofluoric acid, ammonium fluoride, buffered hydrofluoric acid (BHF), hydrofluoric acid and aqueous hydrogen peroxide (FPM), and a solution mixture including ammonium hydrofluoride ( $\text{NH}_4\text{HF}_2$ ) and ammonium fluoride ( $\text{NH}_4\text{F}$ ) ( LAL500).

39. (New) A method according to claim 37, wherein the contaminating impurity is at least one element selected from periodic table group 1 elements or periodic table group 2 elements.

40. (New) A method according to claim 37, wherein the contaminating impurity element is at least one element selected from the group consisting of Na, K, Mg, Ca, and Ba.

41. (New) A method according to claim 37, wherein the contaminating impurity is removed by an acidic solution containing fluorine.

42. (New) A method according to claim 37, wherein the step of crystallization is performed by irradiating the semiconductor film with a laser light.